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Advisor gender and advice justification in advice taking

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Abstract

Purpose – The purpose of this paper is to identify under what circumstances advisor gender and advice justification influence advice taking by managers.

Design/methodology/approach – The authors designed a quasirational managerial decision experiment with both analytic and intuitive cues. The design was a 2×2 between-subjects factorial, in which gender (male/female) and advice justification (intuitive/analytic) were crossed. The experiment involved two independent samples, taken from Amazon Mechanical Turk workers and Brazilian professionals.

Findings – Results suggest that, in general, analytic justification is more valued than intuitive justification. The findings also infer that depending on the advisees' sample and providing that advice justification is analytic, quasirational scenarios seem to favor male advisors (MTurk sample) or both male and female advisors with "male values" (professional sample), as analysis is traditionally considered a "male value."

Practical implications – Analytic justification will likely lead to more advice utilization in quasirational managerial situations, as it may act as a safeguard for the accuracy of the offered advice.

Social implications – The results might signal an ongoing, but slow, process leading to the mitigation of gender stereotypes, considering that the male gender stereotype was active in the MTurk sample, but not in the professional one.

Originality/value – This study contributes to the advice-taking research field by showing the interplay between advisor gender and advice justification in a quasirational managerial decision setting with both analytic and intuitive cues. In advice-taking literature, observations are usually collected from students. However, as this study focused on managerial decisions, the authors collected independent samples from MTurk workers and Brazilian professionals.

Keywords Decision-making, Analysis and intuition, Advisor gender, Advice justification, Advice taking

Paper type Research paper

1. Introduction

In the literature on decision-making, there is a widely accepted distinction between two different modes of thinking (Kahneman, 2003, 2011; Stanovich & West, 2000). The first



mode, known as System 1, is described as intuitive, fast, automatic, associative and effortless; while the other, System 2, is analytic, slow, deliberate, conscious and effortful. Intuitive judgment has not been greatly valued by researchers, despite the increasing recognition of its importance (Hogarth, 2010). Accordingly, academics often defend the idea that intuition has a lower status compared to the use of analysis in problem-solving (Courtney, Lovallo, & Clarke, 2013; Dawes, Faust, & Meehl, 1989; Kahneman, 2003; Russo & Schoemaker, 2002). Moreover, Tversky and Kahneman (1974) presented a vast amount of evidence showing that intuitive thinking is subject to heuristics and biases. Hence, intuition is still frequently perceived as a sloppy way of thinking (Hogarth, 2001).

Nevertheless, in some circumstances, intuitive thinking can outperform analysis (Dane & Pratt, 2007; Gigerenzer & Gaissmaier, 2011; Hogarth, 2010; Kahneman & Klein, 2009), while the combined use of intuition and analysis can perform better than the analytic mode alone (Blattberg & Hoch, 1990).

In decision-making, before the decision itself, there is at least one short moment where the decision maker evaluates what to do, which is the judgment part of the process. Advice taking (and giving), may be considered a subfield in the major decision-making research field, as many (if not most) essential decisions are not made by one person acting alone (Bonaccio & Dalal, 2006). In other words, advice taking (or giving) is part of the decision-making process. Thus, an area of psychological enquiry that models the giving and taking of advice before making decisions has emerged (for a comprehensive review, see Bonaccio & Dalal, 2006).

Bonaccio & Dalal (2010), investigated decision makers' relative preferences for four advisor characteristics, namely, advisor expertise, advisor confidence, advisor intentions and whether that advisor was the sole available source of advice. Their results indicate that advisor expertise and intentions are extremely important in promoting decision makers' acceptance of the given advice. Their results highlight the interpersonal nature of advice giving and taking. It should be noticed that advisor gender was not included in the investigated characteristics.

Tzioti, Wierenga, and Osselaer (2014) looked at advice giving as explicitly based on intuition. Their results show that the utilization of intuitive (versus analytic) advice varies depending on the advisor's seniority and type of task for which the advice is given. They suggest that future research could explore other factors, such as gender, which affect the perceived value of analytical versus intuitive justification in advice taking. Hence, this study took up the challenge by adding the advisor's gender to the advice-taking equation.

Gender is potentially relevant in every social interaction and an undeniable, ever-present influence on how individuals decide and behave, even if their level of awareness of this influence varies from one interaction to another. To a higher or lesser degree, people bring to every interaction their familiarity with societal gender stereotypes and the gendered norms to which women and men are expected to conform to (Holmes, 2008).

In terms of gender roles, norms and stereotypes, Nemecek (1997) cites Keller, a feminist historian and philosopher: "Western tradition has a history of viewing rational thinking as masculine and intuition as feminine." Furthermore, Hogarth (2008) refers to Graham and Ickes (1997), who distinguish between what they call the different empathic abilities of men and women. They show that women possess greater intuitive ability than men in vicarious emotional responding and nonverbal decoding ability, though not in emphatic accuracy. Complementarily, Frederick (2005) suggests that men are more likely to reflect on their answers and are less inclined to go with their intuitive responses. According to Gino and Schweitzer (2008), emotions may also influence advice taking. For example, the person receiving advice may feel emotions for or related to the person giving the advice, which may

be triggered by roles and stereotypes consciously or unconsciously attached to the advisor's gender.

So, what happens when the advisor's gender (male or female) is considered in advice taking? Does the interplay between advisor gender and advice justification (analytic versus intuitive) influence the acceptance of the advice? The objective of this study was thus to identify under what circumstances advisor gender and advice justification influence advice taking by managers. Accordingly, the research question was: What are the effects of advisor gender and advice justification on advice taking in managerial decision-making contexts? To answer this question, we designed a quasi-rational managerial decision experiment with both analytic and intuitive cues. A quasi-rational managerial decision is a decision that involves both analysis and intuition.

This topic concerns scholars and businesspeople, as shown in recent studies published in both business magazines and scientific journals (Bednarik & Schultze, 2015; Locke, 2015; Soyer & Hogarth, 2015; Tzioti et al., 2014). It is also relevant to both managerial and general decision-making processes, as people are usually advice seeking (Bandura & Jourden, 1991; Sims & Manz, 1982) and, in the real world, decisions are often made interactively (Heath & Gonzalez, 1995). To the best of our knowledge, researchers have not addressed this research topic (the interplay between the advisor's gender and advice justification).

2. Theoretical background

2.1 Analysis and intuition in decision-making

Scholars have described intuition in many ways. For example, Dane and Pratt (2007) provide a table with seventeen definitions of intuition. In this context, Hogarth (2010) argues that considering that the similarity among them is more striking than the differences, the essence of intuition or intuitive responses is that they involve little or no conscious deliberation. For Hogarth (2001), intuition can also be described as a learned response shaped by experience. Because people have different experiences throughout their lives, they do not share the same cultural capital; therefore, they have different intuitions. Studies indicate that, in specific contexts, some individuals are more intuitive than others and they can have a better understanding of situations (Allinson & Hayes, 1996; Taggart & Valenzi, 1990).

Academics often defend the argument that intuition has a lower status compared to the use of analysis in problem-solving (Dawes et al., 1989; Kahneman, 2003; Tzioti et al., 2014). However, there is a low recognition that this traditional dichotomy is false (Dhami & Thomson, 2012). In fact, there could be multiple modes of cognition, which lie on a continuum between pure analysis and pure intuition (Dhami & Thomson, 2012; Hammond, Hamm, Grassia, & Pearson, 1987). Any point not at the polar extremes of the continuum between analysis and intuition is called *quasi-rationality*, which includes both analytic and intuitive thinking components. Hammond et al. (1987) propose that the Cognitive Continuum Theory can explain a compromise in the analysis/intuition dichotomy.

Tasks may also be described and placed on a continuum (analytic-intuitive task continuum or cognitive task index), where the extremes are intuitive- or analytic-induced, as per Figure 1. Between these extremes, there are tasks with both intuitive and analytic properties. Most managerial decisions fall between the extremes of the continuum and can thus be considered quasi-rational (Dhami & Thomson, 2012; Hammond et al., 1987).

Intuitive-inducing tasks foster intuitive thinking, and analytic-inducing tasks encourage analytic thinking (Hammond et al., 1987). Scholars contend that when people use their intuitive thinking in intuitive-inducing tasks, the results of their decisions are usually better. The same logic applies when people use analytic thinking in analytic-inducing tasks

(Cader, Campbell, & Watson, 2005; Custers, 2013). Intuitive-inducing activities may include a strong visual component and aesthetic appreciation (such as appraising paintings). On the other hand, tasks containing analytic characteristics will probably contain numbers and formulas and have fewer cues (Hammond et al., 1987; Hogarth, 2001). A non-exhaustive list of task characteristics is presented in Table I.

According to Dane and Pratt (2007), two broad sets of factors influence the effectiveness of intuition: domain knowledge and task characteristics. In both, intuitive judgments may be more effective relative to rational analysis when a problem becomes more unstructured. Quasirationality offers a middle-of-the-way alternative, with a mix of both analysis and intuition – which are required of most judgments (Dhimi & Thomson, 2012).

To evaluate the quality of the different cognitive styles and their inducement, Hammond et al. (1987) manipulated a task's characteristics (either superficial or deep) in a decision-making experiment. Their findings indicate that the surface and depth properties of tasks are able to induce the expected cognition mode (intuitive, analytic or quasi-rational). Furthermore, the efficacy of the three cognition modes indicates that intuition and quasi-rationality can outperform analysis by the same person. Another finding was that analytic reasoning can produce extreme errors. Moreover, when the correspondence between task and cognitive properties is high, the subject's accuracy is also higher. In line with prescriptive approaches to decision-making, their study confirms that the best cognition mode for a specific task is the one that has a better fit with the characteristics of the task.

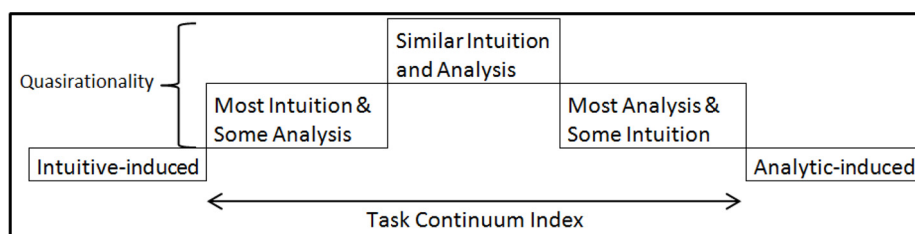


Figure 1.
Mean advice taking,
quasirational
scenario (QS): MTurk
sample

Source: Dhimi & Thomson (2012)

Task properties	Intuition	Analysis
Number of cues	Large	Small
Measurement of cues	Perceptual	Objective and reliable
Cues presentation	Simultaneously	Successively
Decomposition of task	Low	High
Degree of certainty in task	Low certainty	High certainty
Relation between cues and criterion	Linear	Nonlinear
Availability of organizing principle	Unavailable	Available
Time period	Brief	Long
Familiarity with task	Familiar	Unfamiliar
Prior training/knowledge with task	None	Some
Information format	Pictorial	Quantitative
Interpretation of information	Subjective	Objective

Table I.
Cognitive continuum
task properties

Sources: Dhimi & Thomson (2012); Hammond, Hamm, Grassia, and Pearson (1987)

Despite such findings, managers usually prefer analytic thinking. Traditional approaches to management and management education focus on analysis and planning and ignore the intuitive approach required in some situations (Hayes, Allinson, & Armstrong, 2004). Often, executives do not have access to all the information necessary to make decisions and have to rely on, to some extent, on their hunches (Mintzberg, 1976). Thus, top managers tend to make decisions based on a mix of intuition and analysis (Isenberg, 1991).

2.2 Advice taking in management

Executives usually do not make important decisions single-handedly. Although they are responsible for their final decisions, they frequently receive internal and/or external advice during the decision-making process. On a routine basis, to share accountability for decision outcomes and to increase the chances of making good decisions, many decision makers seek advisors out and take advice (Harvey & Fischer, 1997; Yaniv, 2004a, 2004b). Out of the five different methods of managerial decision-making – as classified and presented by Vroom and Jago (1988) – the judge–advisor system is present in three of them. Advice seeking is present in strategic managerial decision-making (Arendt, Priem, & Ndofor, 2005), and the literature suggests that the advice offered by colleagues influence managers' decisions (Alexiev, Jansen, Van den Bosch, & Volberda, 2010; McDonald & Westphal, 2003).

The advising process comprises advice seeking, advice giving and advice taking. It is important to state, however, that the first – advice seeking – is not always present. Decision makers may receive advice without having previously asked for it (Bonaccio & Dalal, 2006). Nevertheless, when decision makers ask for advice, they are more likely to follow the recommendation than when advice is unsolicited (Gibbons, Sniezek, & Dalal, 2003).

According to Yaniv and Kleinberger (2000), decision makers have privileged access to the evidence that supports their own opinions, but not to the advisors' internal reasons. Therefore, advisees do not follow advice, as they should, to truly benefit from it. Usually, decision makers overweigh their own opinions. This is known as the egocentric discount effect, and it has been verified several times in different settings (Bonaccio & Dalal, 2006). Additionally, advice taking by high-power individuals is less sensitive to advisor expertise because such individuals experience greater competitiveness and confidence (Tost, Gino, & Larrick, 2012).

Moreover, research indicates that how people justify their advice could significantly impact the taking of such advice. People are usually less receptive to the advice that is intuitively justified. However, when the advisor is a senior, this resistance is mitigated. In specific conditions (e.g. intuitive-inducing tasks), the acceptance level of intuitively justified advice, when given by senior advisors, can be even higher than the analytically justified advice (Tzioti et al., 2014).

2.3 Gender in decision-making and advice taking

Stereotypes are usually simple, overgeneralized and widely accepted by the so-called “common wisdom.” They can be quite inaccurate. It is simply not true that all men are analytic, rational, and objective; it is also not true that all women are intuitive, sensitive and emotional. However, even false stereotypes can – and do – profoundly affect people's interaction and interpersonal relationships (Snyder, 2015). Stereotyping is associated with the concept of labeling, to influence perception and, in turn, decision-making. The famous sociologist Frank Tannenbaum (1938, p. 20) said, “The person becomes the thing he (*or she*) is described as being,” adding that “the community expects him (*or her*) to live up to his (*or her*) reputation and will not credit him (*or her*) if he (*or she*) does not live up to it” (p. 477 – words in italics added by the authors).

Stereotypes are therefore relevant to our research goal: to find if, and under what circumstances, the advisor's gender (male or female) and advice justification (analytic or intuitive) influence advice taking. Gender stereotypes, as well as personal beliefs and values, may affect, to a lesser or greater extent, advisees' perception of the value of the offered advice, which is what was measured in the experiment we conducted herein.

For [Marshall \(1993\)](#), at the aggregate social level, male values can be characterized by rationality, analysis, self-assertion, competition, focused perception, clarity, discrimination and activity. On the other hand, female values can be characterized by intuition, wholes (i.e. having a holistic view), emotional tone, cooperation, interdependence, receptivity, acceptance, awareness of patterns and synthesizing. The author argues that gender values are qualities to which both sexes have access. However, through traditional socialization and gender roles, women are more often grounded at the female pole and men at the male pole, thus supporting gender stereotypes. [Pelham et al. \(2005\)](#) are aligned with this view when they argue that, relative to men, women are strongly socialized to trust their feelings and intuitions.

[Eagly, Wood and Diekmann \(2000\)](#) offer a different perspective. They argue that expectations about men and women necessarily reflect their status and power differences. Thus, cultures feature shared expectations for the appropriate conduct of each gender, and these expectations foster gender-differentiated behavior. Moreover, social role theory treats gender roles as a dynamic aspect of culture; it emphasizes the causal impact of people's beliefs about the behavior that is appropriate for each gender ([Eagly & Wood, 1991](#)). Indeed, gender differences may occur because experience with hierarchical social structures, in which men have higher status, it creates expectancies about male and female behavior. Therefore, these expectancies affect social interaction in ways that foster behavior that confirms such expectancies ([Eagly, 1983](#)).

Yet, [Ridgeway and Smith-Lovin \(1999\)](#) affirm that studies of interaction among peers with equal power and status show fewer gender differences in behavior. However, they also point out that most interactions between men and women occur in the structural context of roles or status relationships that are unequal, thereby perpetuating status beliefs and leading men and women to recreate the gender system in everyday interactions.

[Heilman \(2012\)](#) focused on the workplace consequences of descriptive gender stereotypes (designating what women and men *are* like) and prescriptive gender stereotypes (designating what women and men *should be* like). She argues that descriptive gender stereotypes promote gender bias because of the negative performance expectations that result from the perception that there is a poor fit between what women are like, and the attributes believed necessary for successful performance in male gender-typed positions and roles. Similarly, prescriptive gender stereotypes promote gender bias by creating normative standards for behavior, which leads to disapproval and social penalties when they are directly violated. [Powell, Butterfield, and Parent \(2002\)](#) found that although managerial stereotypes place less emphasis on male characteristics than in earlier studies published in the 1970s and 1980s, a good manager is still perceived as predominantly masculine.

Additionally, [Johnson and Powell \(1994\)](#) explored differences in the nature of decisions made by males and females. They argue that women are often excluded from managerial positions of authority and leadership due to stereotypes, which have been constructed by observing non-managerial populations at large. However, they conclude that these stereotypes may not apply to managers because, in the managerial sub-population, male and females make decisions of equal quality.

It is widely acknowledged that task properties, advice content, advice justification, advisor's seniority and advisee's beliefs about the accuracy of the given advice, among other

factors, may impact advice taking (Dalal & Bonaccio, 2010; Hammond et al., 1987; Tzioti et al., 2014). However, to the best of our knowledge, no research has examined if and how advisees take advice differently when it is given by a male or a female advisor.

As previously mentioned, Dhimi and Thomson (2012) state that most tasks can be placed along an analytic – intuitive task continuum, as they have both analytic and intuitive properties, which are required of most managerial judgments. Hence, to test if and under which circumstances the gender of the advisor and advice justification influence advice taking, our experiment was set in a quasi-rational managerial decision-making scenario. In other words, the scenario had both analytic and intuitive cues. In such a setting, will analytic justification have more impact than intuitive justification? And, will advice justification affect advice taking differently, depending on whether that advice is given by a male or female advisor?

3. Experiment: quasirational scenario with analytic and intuitive cues

The quasi-rational scenario was inspired by an IESE-designed business case (García-Castro, 2011). Our experiment contained both analytic- and intuitive-inducing characteristics. Participants played the role of a product manager and had to indicate the extent to which they would recommend the launch of a new product (electric boiler) to the board of directors of the company.

The scenario presented financial figures, such as estimated investment, sales, price, product cost, expected return and minimum return required – characteristics of analytic-inducing tasks (Dhimi & Thomson, 2012). Additionally, there were some intuitive-inducing cues: the decision maker also had to consider qualitative issues involving consumer behavior, people's cultural values, beliefs about the environment, market trends and the competition. These issues introduced subjective components to the decision. Moreover, participants were told that, considering the time horizon of the investment (10 years) and the general conditions of the economy, there were uncertainties regarding the effective economic return of the new product.

To verify if this decision would not be perceived as either a male- or female-dominant task, 100 Amazon Mechanical Turk (MTurk) workers answered a small pre-survey. Respondents did not perceive the role of a product manager as a male or a female activity: the average score was 52.7, on a scale where 0 indicated male and 100 female activity. When asked who could perform better as a product manager, people answered that both men and women could perform equally as well, with an average score of 50.5 on a scale where 0 indicated men and 100 women. Thus, it seems reasonable to assume that this scenario was fairly gender neutral.

Despite the increasing interest in, and recognition of, the importance of intuition in decision-making literature (Gladwell, 2007; Hogarth, 2010; Kahneman & Klein, 2009), there is still a strong belief that analytic thinking occupies the superior ground (Bonabeau, 2003; Dawes et al., 1989; Russo & Schoemaker, 2002). Intuition, on the contrary, is negatively associated with unreliability and sloppy thinking (Hogarth, 2001). Additionally, analysis is perceived as a male characteristic, whereas intuition is considered a female attribute (Marshall, 1993; Schein, 1975). Furthermore, Tzioti et al. (2014) suggest that advice justification has a strong influence on advice utilization. Managers are, in general, trained and recommended to act according to prescriptive and rational ways. Indeed, managers usually prefer analytic thinking (Hayes et al., 2004).

Thus, taking into account the following:

- analytic thinking has a higher status than intuitive thinking;

- the focus of this experiment was on managerial decision-making; and
- managers usually prefer analytic thinking and are trained and recommended to act according to prescriptive and rational ways, it was expected that participants would prefer analytically justified advice to intuitively justified advice.

Adding the following considerations:

- that gender stereotypes can and do affect people's interaction; and
- that analysis is not perceived as a female attribute but as a male characteristic – it was also expected that participants would prefer male advice to female advice.

11

Considering the two previous effects, and taking into account the traditional view on socialization, we would have a third expected result: advisees would take more analytic advice from male advisors than from female advisors. Therefore, the hypotheses for this scenario were as follows:

- H1.* In the context of quasi-rational tasks, advisees will take more analytically justified advice than intuitively justified advice.
- H2.* In the context of quasi-rational tasks, advisees will take more advice from male advisors than from female advisors.
- H3.* In the context of quasi-rational tasks and analytically justified advice, advisees will take more advice from male advisors than from female advisors.

3.1 Design and procedure

The design was a 2×2 between-subjects factorial, in which gender (male/female) and advice justification (intuitive/analytic) were crossed.

The procedure was followed in accordance with [Tzioti et al. \(2014\)](#). All participants took part in the experiment online, where they were randomized across different conditions. The task was a go/no-go decision, involving a product launch. It was based on a case study, which mirrored the real-life Toyota Prius launch decision; therefore, the task portrayed a realistic and typically common managerial decision.

Respondents played the role of a product manager. Their task was to indicate the extent to which they would recommend the launch of a new electric boiler called CE-1. Respondents received a brief description of the scenario to base their answers on (see Scenario Description).

3.1.1 Scenario description. Imagine that you are a Product Manager of a medium sized company that operates in the competitive home heating equipment market.

Your company has specialized in the manufacture and sale of highly efficient, mainly oil and gas-fired-heating equipment. However, considering the world trend for non-polluting equipment, your company has developed a new electric boiler that eliminates the use of gas and oil: CE1. It is safe, efficient, durable and reliable.

At the Board of Directors' meeting, you will have to say to what extent you recommend the launch of the CE1. This is a critical decision for your career, as the success or failure of this product will have a significant financial impact on the company.

The estimated investment is approximately US\$70m, a large sum, considering your company size (average annual revenue of US\$400m). The time horizon of the investment is 10 years, and the company's financial calculations show that the expected rate of return of the CE1 is 9.2 per cent, lower than the expected minimum return of 10 per cent. The

company based these calculations on estimated sales of 10,000 units a year, an estimated cost per unit of US\$3,000 and a price of US\$4,100 (higher than that of traditional boilers as the CE1 is a technologically advanced product).

Considering the time horizon and the general condition of the economy, there are uncertainties regarding the effective economic return of the CE1. After all, many things may happen in 10 years.

Consumer behavior, for instance, is affected by variables such as predisposition to adopt new technologies; perception of value in the price of a product, quality and service. Furthermore, people are influenced by cultural values and beliefs about environmental issues. Also, your competitors' strategies and market trends regarding the use of "clean" technologies involve uncertainty too. All these issues introduce subjective components to your decision.

After reviewing the case information, participants had to indicate on a slide bar the extent to which they recommended the product launch – 0 on the left being "Definitely No-Go" and 100 on the right indicating "Definitely Go" – on an underlying choice continuum. By default, the slide bar's initial position was in the middle (50 = neutral/indifferent).

Once respondents made their recommendation, they were told that, as this decision was important, they had the opportunity to receive advice from a company colleague, also a product manager. The advisor was characterized as male ("Peter") or female ("Anna"). Each participant received three pieces of advice from one advisor only, which always favored the product launch. The pieces of advice were either analytically or intuitively justified, and their informative content was always the same; only the justification changed (see *Intuitively and Analytically Justified Pieces of Advice*).

3.1.2 Intuitively and analytically justified pieces of advice. As this is a very important decision, you will have the opportunity to receive some advice from (Peter) Anna, a company colleague. After receiving (Peter's) Anna's advice, you will be able to review your initial estimate. You and (Peter) Anna have been working together for some time. (He) She is also a Product Manager. (Peter) Anna is willing to help you, and these are (his) her recommendations:

My intuition says that (The market research data tell me that) despite the uncertain economic return, this product will deliver nice publicity and first mover advantages. I definitely recommend its launch.

My feeling is (Judging from the competitor analysis, I would say that) that CE1 is going to contribute to the company's image heavily. People will see us as innovative, modern and ecofriendly. It will be a success.

Intuitively (If I go with what the consumer data say), I believe that people are willing to pay more for efficient and ecofriendly products. There is a trend, and the company must take advantage of this situation now. So, it is a go!

After receiving advice, participants had the chance to review their initial decision. Once more, they used the slide bar to indicate to what extent they would recommend the product launch. For this second decision, the slide bar's initial position was also set in the middle. Finally, participants had an open space for general comments.

3.2 Dependent variable

To measure the extent to which the decision maker accepted the advice from the advisor, we used advice taking as a dependent variable. We replicated the formula used

by Tzioti et al. (2014), which is a standard measure (Harvey & Fischer, 1997). It considers the initial answer from the advisees, their final decision, and the advice received, using the formula below:

$$\text{Advice Taking} = \frac{(\text{Final Estimate} - \text{Initial Estimate})}{(\text{Advised Estimate} - \text{Initial Estimate})}$$

As advice was strongly in favor of launching the product, the advised estimate in this research was considered 100. This dependent variable gauged the degree to which the advisees reviewed their decision in the direction of the received advice (Tzioti et al., 2014).

3.3 Results

First, we collected a sample from MTurk workers, which is representative of the US population in several types of research. Then, as this experiment focused on managerial decision-making, and to compare results, we collected a sample of Brazilian company professionals. No difference between male and female advisees was found in either sample.

3.3.1 MTurk sample. Only those from the USA were eligible for this research, and 347 workers from MTurk (132 men and 215 women) participated, each receiving a US\$0.50 reward for partaking in the experiment. This experiment was initially written in Portuguese and then translated into English, using back translation to check for accuracy. Fourteen observations were excluded because their first estimate was 100, identical to the advised decision, thereby yielding an invalid observation. In these cases, it would not be possible to quantify the extent to which the advisee would use the received advice. This is a methodological practice in advice-taking research (Gino, 2008; Tzioti et al., 2014; Yaniv, 2004a).

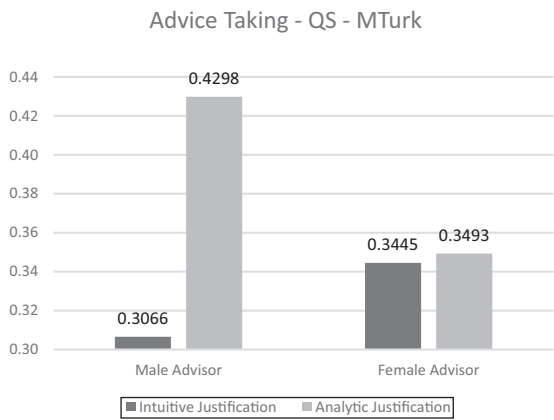
Results are presented in Table II and Figure 2.

The main effect of advice justification on advice taking was significant: $F(1,313) = 4.66$, $p = 0.03$. Participants took more analytically justified than intuitively justified advice. The main effect for advisor gender was not significant: $F(1,346) = 0.52$, $p = 0.47$; male and female advice was similarly taken. The interaction effect of advisor gender and advice justification was significant: $F(1,313) = 3.98$, $p = 0.05$. In the male advisor condition, the effect of advice justification was significant: $F(1,155) = 8.38$, $p < 0.01$. Respondents took more analytically justified than intuitively justified advice. In the analytically justified condition, the effect of

Quasirational scenario	Mean	SD	N
<i>Male</i>			
Intuitive	0.3066	0.23932	81
Analytic	0.4298	0.29282	76
Total	0.3663	0.27278	157
<i>Female</i>			
Intuitive	0.3445	0.26010	79
Analytic	0.3493	0.26291	81
Total	0.3470	0.26072	160
<i>Total</i>			
Intuitive	0.3253	0.24974	160
Analytic	0.3883	0.27982	157
Total	0.3565	0.26651	317

Table II.
Quasirational MTurk
sample– Descriptive
statistics

Figure 2.
Mean advice taking,
quasirational
scenario (QS): MTurk
sample



gender was marginally significant at a p -value of 0.10, considering that the hypothesis is unidirectional: $F(1,155) = 3.23$, $p = 0.07$. Participants took more advice from male than female advisors. Finally, in the female condition, the effect of advice justification was not significant: $F(1,158) = 0.01$, $p = 0.91$. Considering these results, $H1$ and $H3$ were supported. Nevertheless, $H2$ was not.

3.3.2 Professional sample. Of the 137 Brazilian professionals who completed this experiment, 95 were men and 42 were women. Participants were from different organizations, such as banks and oil companies. They did not receive any financial reward or gift for their participation. Ten observations were removed because the first estimates were equal to 100, yielding an undefined value for advice and eight observations were removed due to Advice Taking lower than -0.1 .

Results are presented in [Table III](#) and [Figure 3](#).

Again, the advice justification main effect was significant: $F(1,115) = 4.73$, $p = 0.03$. Analytically justified was higher than intuitively justified advice. There was no advisor gender main effect: $F(1,115) = 0.66$, $p = 0.42$; male and female advice was similarly taken.

Table III.
Quasirational
professional sample
– Descriptive
statistics

Quasirational scenario	Mean	SD	N
<i>Male</i>			
Intuitive	0.1741	0.27108	34
Analytic	0.3261	0.32723	25
Total	0.2385	0.30307	59
<i>Female</i>			
Intuitive	0.1748	0.23477	34
Analytic M	0.2431	0.26751	26
Total	0.2044	0.24963	60
<i>Total</i>			
Intuitive	0.1745	0.25167	68
Analytic	0.2838	0.29821	51
Total	0.2213	0.27676	119

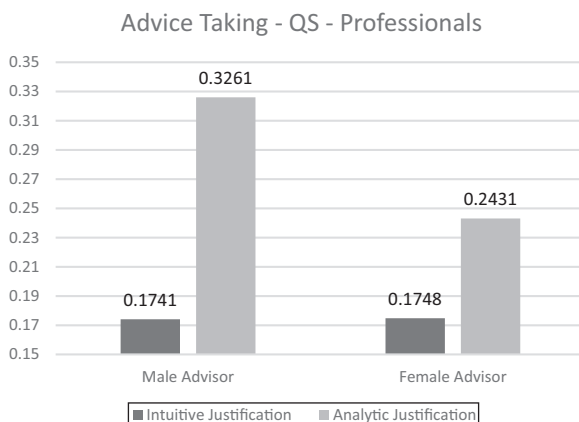


Figure 3.
Mean advice taking,
quasirational
scenario: professional
sample

The interaction effect was not significant either: $F(1,115) = 0.66, p = 0.41$. Female advice was similar to male advice: $F(1,115), p = 0.42$. In the analytic condition, advice taking was similar for male and female advisors: $F(1,49) = 0.99, p = 0.33$. These results, therefore, support *H1*, but neither *H2* nor *H3*.

4. Discussion

In this study, we found that, in a quasi-rational managerial decision setting with both analytic and intuitive cues, analytic advice outweighed intuitive advice in both samples (*H1* was supported). As analytic justification is based on mindful analysis, advisees can obtain insights regarding the rules and logic that could have guided the advisor to formulate the offered advice (Tzioti et al., 2014) – which may reduce advice discounting.

Moreover, there is substantial empirical evidence that people are not equally irrational (for example, not equally affected by stereotypes, such as gender stereotypes) and that situational variables can exert an important influence on the rationality of behavior (Mitchell, 2002). One of the contextual variables with perhaps the most far-reaching effects on judgment and decision-making behavior, as well as on advice taking, is accountability. Accountability usually implies that people who do not provide a satisfactory justification for their actions are prone to suffer negative consequences (Tetlock, 1992). This could explain why, in managerial decision-making, quasi-rational tasks with both analytic and intuitive cues create a context that tends to elicit a more analytic approach to problem-solving, favoring analytically justified over intuitively justified advice, to try to increase the probability of a positive decision outcome. (*H1* was supported).

Conversely, when considering solely *H2* (gender main effect hypothesis), gender stereotypes took a secondary or background role, and the hypothesis was not supported. In other words, the analytic justification was paramount, regardless of the advisor's gender. By the same token, when considering *H3* (quasi-rational task and analytically justified advice), i.e. when the accountability contextual variable is satisfied, gender stereotypes may be activated.

Consequently, as expected, in the MTurk sample under the analytic justification condition, male analytic advice was more valued than female analytic advice (*H3* was supported): that is, the utilization of analytically justified advice boosted advice taking only when the advisor was male. This is in agreement with expected gender roles and their congruity (Eagly, 1983, 2004) and could, therefore, suggest the activation of the male gender stereotype.

Our findings in the professional sample did not show a statistically significant difference between male and female analytically justified advice (*H3* was not supported). It should be noticed that advice-taking situations are complex and multidimensional. Decision makers are likely to be confronted with advisor information along with explicit or implicit factors; some of which may be more important than others to decision makers (Slovic & Lichtenstein, 1971). This could be explained by Johnson and Powell's (1994) assertion that gender stereotypes may not apply to managers as, in the corporate world, male and females make decisions of equal quality. Moreover, it could also suggest that the work behavior of men and women may be more influenced by their organization's structural environment, than by the organization members' gender-role characteristics (Green & Cassell, 1996). This could signal the mitigation of gender stereotypes, especially in managerial settings. Wright, Baxter and Birkelund (1995) suggested that the gender gap might be gradually overcome if women displayed the capacity to challenge stereotypes, gaining authority and acknowledgement in the workplace. In support of this view, researchers (Eagly & Karau, 2002; Finger, Unz, & Schwab, 2010) have noticed a decrease in gender stereotyping over time.

In the male advisor condition, male analytically justified advice outweighed male intuitively justified advice in both samples. This is in line with the greater value that people attribute to analytic thinking, compared to intuition (Dawes et al., 1989; Kahneman, 2003; Hogarth, 2010).

Despite the discussion about which cognitive way of thinking brings the best results, this paper addressed a related but different perspective: how the advisor's gender and advice justification influence advice taking. In the experiment that we conducted, advice justification and advisor gender were manipulated.

Our findings enable us to infer that, depending on the advisees' sample, quasi-rational scenarios seem to foster the utilization of analytically justified advice offered by male advisors (as is the case with MTurk workers) or by male and female advisors who embody "male values" (as is the case with Brazilian professionals) as analysis is traditionally considered a "male value." Thus, we argue that analytic justification seems to be better valued in quasi-rational managerial situations with both analytic and intuitive cues. These findings corroborate Heilman, Block, Martell, and Simon (1989), who suggest that successful managers are characterized as logical, analytic and objective. Supporting this view, Green and Cassell (1996) argue that the work behavior of men and women is shaped by the (male/analytic) domination of opportunity and power structures, rather than by the organization members' individual characteristics. Moreover, the gendered cultural perspective also suggests that it is "male values," and not necessarily "male gender," that define appropriate behavior for managers (Gardiner & Tiggemann, 1999).

Traditional approaches to management focus on analysis, planning and systematic decision-making (Hayes et al., 2004). This aspect fosters an organizational discourse where rationality and analytic thinking are valued, while intuition is often dismissed. However, Mintzberg (1976), Isenberg (1991) and Lank and Lank (1995), among others, argue that much executive work involves speculative data, high uncertainty and immediate action, rather than reflection and planning. In fact, managers need to rely heavily on a mix of intuition and disciplined analysis, whether acknowledged.

We can also analyze our study in terms of expected gender roles and their congruity (Eagly, 2004). This can explain why MTurk workers valued male more than female analytic advice. People may perceive men as being more capable of giving advice when there are analytic cues.

People often take advice because of their accountability to others (Kennedy, Kleimutz, & Peecher, 1997). Possibly, a decision based on analysis and logic is easier to justify, in hindsight, if there are negative outcomes. Arguing that a person followed somebody else's

hunch to make a decision may not be perceived as sound managerial judgment. In the collective imaginary, intuition still has, to some extent, mystical, magical and spiritual connotations, weakening its power as a valid source of judgment.

Finally, the experiment demonstrated the importance, in advice taking, of the interplay between the advisor's gender and advice justification in quasi-rational tasks with both analytic and intuitive cues.

5. Contributions, implications and future research

We believe that this is the first study that examines the impact of the advisor's gender and advice justification on a quasi-rational managerial decision setting with both analytic and intuitive cues. In advice-taking literature, observations are usually collected from students. As our study focused on managerial decisions, it included independent samples collected from MTurk workers and Brazilian professionals: a valuable contribution to this research field.

Specifically, when comparing male and female advisors, we found that in the MTurk sample, male analytically justified advice was more influential than that of female advisors. This could suggest the activation of the male gender stereotype in one sample, but not in both. Consequently, our results might signal a slow, ongoing process leading in the long term to the mitigation of gender stereotypes. Social role theory treats gender roles as a dynamic aspect of culture (Eagly et al., 2000). Future studies could address if gender values, which are qualities to which both sexes have access (Marshall, 1993), are effectively and gradually being attributed to both men and women, thus replacing traditional gender stereotypes.

A secondary finding, which can be used as a basis for future research (as expressed confidence was not measured in this study), is that advice taking among Brazilian professionals was significantly lower than among MTurk workers ($F(1, 433) = 399.4, p < 0.001$). In the experiment, professionals' advice-taking mean was 0.22 ($SD = 0.27$), while the MTurk workers' mean was 0.36 ($SD = 0.28$). Although the samples correspond to individuals from different cultures, this difference in advice taking is possibly also due to professionals' higher self-confidence. This fact might explain their lower acceptance of advice (Tost et al., 2012).

Future research could also try to explore different tasks and advisors along with different characteristics (such as race, sexual orientation, religion and even advisors' names). For instance, when dealing with cuisine or fashion, people might place more value on advice given by an advisor with a French or Italian name.

A practical message for managers and consultants to take away is that, in managerial decision-making, advisors should be aware of how, when there are analytic cues, analytic justification is more used than intuitive justification. Therefore, analytic justification will likely lead to more advice utilization. This paper contributes with some initial insights to the advice-taking research field by introducing advisor gender into the equation. Of course, there is still much to learn.

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